GLLP Global Laboratory Leadership Programme

Strong leaders for health security

GLLP Project Guide

Interim March 2022

Table of Contents

Individual and Small Group Projects

Background:

During or at the completion of each unit the participants should ideally be asked to work as individuals or in small groups to carry out projects that help them apply what they have learned in the modules covered within that unit. The instructors will determine if the projects are to be carried out by individuals or as small groups. Each participant would be expected to put in at least several hours of effort on a project. Participants may need to seek guidance from their mentors on project work; however the project effort is primarily designed to expand the participants' learning experiences, Depending on the project, in addition to a written report, an individual or group presentation could be presented to the instructors, mentors and others within the larger group for reaction, feedback and discussion.

Initial project planning

1. Project purpose
2. What specific part(s) of the module(s) is(are) being addressed with the project?
3. Is the project to be carried out on an individual basis or as a group project? If as a group how will the project efforts be divided?
4. What is the time frame allotted for the project?
5. Are there any costs associated with the project and are the necessary funds identified and available?
6. Are there suggested methods or tools, e.g., literature review, surveys, focus groups, etc necessary for completing the project?
7. How are the findings of the project to be shared and with whom? Written? Oral? Both?

Suggested instructions to participants

- You are being given a project that is related to the subject matter in the following module(s).
- Each project should require no more than several hours of your thought and effort.
- You should use the GLLP materials as background, plus any other suggested references and your own personal insights and experience to complete the project.
- The projects are to be carried out by individuals or small groups.
- If working as a group, you should first determine how the project will be carried out and how individual responsibilities will be shared among all members of the group (this could be done with the support and help of the participant mentors).
- A written report and/or oral presentation should be shared with your instructor and mentor.

Project suggestions/ideas

Note: The following examples of projects are **suggestions** only. Instructors/mentors should identify projects that are directly related to the specific context and needs where the training is taking place. Projects that incorporate a One Health perspective are most desirable and beneficial.

2.A General Management Principles

2.A.1 General Management Skills

Creation of a job description for a specific new laboratory position/s, e.g., Quality Assurance Officer, Safety Officer, Training Coordinator. This could be a position within a specific laboratory or it could be a position within a laboratory network or national laboratory system.

2.A.2 Financial Management

Development of a budget-tracking process for the laboratory's annual budget. Assume that the laboratory must meet its budget target and cannot exceed what the annual budget allows.

2.A.3 People Management

Creation of an "Onboarding" or "Induction" process for all new laboratory employees. In addition to any existing requirements of the personnel department or Human Resources, what specific orientation processes should be in place for all new laboratory employees?

2.A.4 Laboratory information Systems

Preparation of a set of specifications which are required for a new Laboratory Information Management System (LIMS). Detail why the specifications as written are essential.

2.B Quality Management System (QMS)

2.B.1 Introduction to Quality Management System

Establish the essential components of a national External Quality Assessment (EQA) Proficiency Testing programme.

2.B.2 Process Management

Development of a sample collection, transportation and reception protocol that provides guidance to those collecting samples, transporting samples and accessioning/receiving samples.

2.B.3 Documents and Records Management

Creation of a document control process, to include the need for unique identifiers, document storage and retrieval policies, document revisions, and other components of a complete document control process.

2.B.4 Equipment and Consumables

Development of a standard operating procedure that lays out the requirement for instrumentation calibration.

2.B.5 Nonconforming Events Management

Define root-cause analysis and establish the process to complete a root-cause analysis of a nonconforming event.

2.B.6 Assessments

Select an area of the laboratory and describe what would be included for an internal audit of that area of the laboratory. A simulated audit could encompass any of the quality system essentials.

2.B.7 Continual Improvement

Create an internal and external Turnaround Time (TAT) monitoring programme. Demonstrate how use of TAT monitoring can contribute to continuous quality improvement.

2.B.8 Customer Focus

Establish a customer feedback tool. Demonstrate how it can be used to monitor both internal and external customer satisfaction.

2.C Safety

2.C.1 Biosafety

Creation of a waste management protocol that covers both biohazardous waste and chemical waste. Incorporate any applicable laws and regulations. Include the mechanism by which compliance is assured.

2.C.2 Biosecurity

Creation of a protocol that establishes who is authorized to access and work with certain dangerous pathogens including how the adherence to and enforcement of the protocol is assured.

2.C.3 Shipment of Dangerous Goods

Review of applicable national and international standards or requirements for the shipment of dangerous goods and compilation into a standard set of practices.

2.D Laboratory Role in Disease Surveillance

2.D.1 Principles of Surveillance

Outline the way in which the laboratory system is engaged in the creation of a reportable disease programme and indicate how effective laboratory-based surveillance is used in the identification and reporting of new cases.

2.D.2 Outbreak Investigation

Identify and outline what is required in an after action outbreak report.

2.E Managing Emergencies

2.E.1 Emergency Preparedness

Develop a laboratory system resource mobilization plan that can be used to prepare for emergencies.

2.E.2 Emergency Response

Design a communication plan for a laboratory within your sector that could be used in the event of a national health threat.

2.E.3 Emergency Recovery

Develop a plan that can be followed to re-establish normal laboratory operations after an emergency.

3.A General Leadership

3.A.1 General Leadership Skills

Outline how general management skills and general leadership skills are similar and how they are different. Provide practical examples of how it is sometimes necessary to use both management skills and leadership skills in the role of overseeing a laboratory.

3.A.2 Laboratory Policy and Strategic Planning

Describe the essential components of a Strategic Plan as applicable to your organization. What steps are required to assure that a Strategic Plan is implemented, monitored and evaluated?

3.A.3 Organizational Leadership

Organograms are a necessary part of any laboratory operation. They can be developed using different approaches. Outline the various approaches that can be taken and give the potential positive and negative aspects of each approach.

3.A.4 Critical Thinking

Identify potential decision-making traps that may exist within your organization. Outline the ways that decision-making should be carried out in order to avoid those traps.

3.A.5 Partnerships and Coalition Building

Develop a plan for how laboratory partnerships can be created across sectors. What is required to assure that such partnerships work well and all partners feel empowered and valued?

3.A.6 Ethics in the Laboratory

Establish a draft professional code of conduct that encompasses the ethical requirements within your organization. Demonstrate how such a code of conduct could be adopted and how adherence could be monitored.

3.B Communications

3.B.1 General Communications Skills

Develop a plan to communicate the need for a new laboratory test to the head of your organization. Outline what would be needed for a combined oral and written presentation. What parts are most effectively communicated orally and which are best communicated in writing?

3.B.2 Proposal Writing

Create a formal proposal that could be presented to a potential laboratory services funder, e.g., an international foundation. Describe how the proposal could best be used to convince the funder to invest in your laboratory.

3.B.3 Media Relations

Create a media relations plan for your organization. Who will be assigned the responsibility for media inquiries? Identify potential programmes for media training within your country. How will complex laboratory information be presented in an understandable way?

3.B.4 Risk Communication

Design a risk communication plan that can be used during an emergency situation. Include the identified risks that may be encountered for those both within the laboratory as well as those who interact with the laboratory.

3.B.5 Scientific Communication

Outline how the results of laboratory testing should be shared with other health professionals, policymakers and the general public.

3.C Research

3.C.1 Research and Innovation

Create a report on the comparison of a newly developed procedure with a procedure that has been used as the standard for a long period of time. What criteria should be used to adopt the new procedure?

Capstone Projects

Background:

At the conclusion of the didactic portion of the Laboratory Systems section of the programme, participants will be assigned Capstone Projects which are intended to serve two primary purposes:

1. To further provide an experiential leaning opportunity for each participant to learn about how national laboratory systems can be created, supported and sustained;
2. To provide some useful and practical plans that can be implemented to help strengthen the specific national laboratory system where the participants are currently engaged.

The information that will be used to guide these Capstone Projects will be derived from the following:

1. The compiled results and findings of the sector-specific questionnaires that were completed by each participant before the section on Laboratory Systems;
2. The results of the discussions that occurred related to the six Laboratory System Essentials (Policy and Legal Framework; Infrastructure; Workforce; Information Systems; Quality Management Systems; Biosafety and Biosecurity);
3. The outcome of the Case Study and the debriefing that took place after the tabletop exercise;
4. Any priority needs that have been identified as essential for the strengthening and sustaining of the national laboratory system.

On the last day of the Laboratory System Section of GLLP there should be the opportunity for participants, mentors and instructors to discuss whether the National Laboratory System within which they work is undeveloped, in the process of being developed, is partially developed or is substantially developed. In the module identified as “Moving Forward” all will be encouraged to identify those areas (linked back to the six Laboratory System Essentials) where the national laboratory system needs further strengthening or development, or if the system is currently strong in certain areas, how will that area of strength be sustained. Out of such discussions should come identified areas where Capstone Projects could be used to further develop, strengthen or sustain the laboratory system. Through a process of prioritization of need the broad areas that should be explored will be captured. Following that, there will be a process to align participant interest with identified project areas.

Although each participant may be assigned his/her own Capstone Project, in some instances there may be a need to pair up and work together on Capstone Projects that are quite large or which have multiple components. If more than one participant is assigned to a given Capstone Project, it would be beneficial to include individuals from different sectors so that the “One Health” concept is supported.

In addition to project areas being identified and participants assigned to specific projects, mentors will provide guidance and support as needed to assist the participant(s) with their respective projects. Participants should have approximately six months to complete and

write up their projects, including their findings and recommendations. After six months the participants will return to orally present their project reports and provide the proposed action plans needed to move these projects forward.

Suggested Capstone Project planning

- Project title/participant name.
- Project purpose/objectives.
- Resources required to complete project.
- What specific laboratory system essential is being addressed?
- Timetable for planning and implementation (within six months of being assigned).
- Methods for project development and implementation may vary depending on the nature of the project.
- A formal written report of the Capstone project findings and oral presentation are required in order for participants to be recognized as having completed GLLP.

Suggested instructions to participants

- You are being assigned a Capstone project that is related to one of the six laboratory system essentials.
- This project represents a major assignment for each GLLP participant. It is intended to serve as learning activity based on experience and observation, as well as a source of practical guidance to help strengthen your country's laboratory system.
- You should use the GLLP materials as background, plus any other suggested references and your own personal insights and experience to complete the project.
- You should engage your mentor as necessary, but the project is a reflection of your own personal effort.
- You will be expected to complete the project within six months, and you will create a formal written report and oral presentation for your project.
- Your report should include any practical suggestions and written in a way that it can be applied to your country's laboratory system.
- The successful completion of this project is a requirement for all participants who wish to be acknowledged as having completed GLLP.

Although the nature and specifics of Capstone Projects will undoubtedly differ by setting and participant makeup, the following represent some examples of potential Capstone Projects within the six broad areas of laboratory system essentials. The listing of examples for individual or small group projects above could also be used as a source for capstone project ideas.

1. *Policy and Legal framework* – Outline the current laboratory system within your country.
    a. Is the system highly centralized and controlled at the national level? Or is it decentralized? Does it rely heavily upon voluntary collaborations among and across all sectors? If the system is highly centralized, could it be improved

through some decentralization? If it is highly regulated, could it be better structured through voluntary collaborations? What are the major advantages and disadvantages of being centralized versus decentralized? What are the essential requirements for an effective system irrespective of the model used? What steps would be needed to assure these requirements are being met?

2. *Infrastructure* – Laboratory instrumentation is critical to an effective national laboratory system. The source of funding for such instrumentation may come from various entities such as the government, foreign aid, private foundations or instrument manufacturers. Develop a policy that would address how instrumentation needs across the national laboratory system are met. Also include in the policy how instrument maintenance and replacement can be assured.
    a. What steps should be taken to assure that parts and supplies needs are met and that major supply chain problems or "stock outs" are avoided?

3. *Workforce* – A national laboratory system requires a steady stream of qualified, educated laboratory scientists and ancillary workers. Within the laboratory system there may be private laboratories, public laboratories, biotechnology laboratories and academic laboratories. Develop standards for the laboratory system workforce.
    a. Address the need for equitable and competitive wages across the system supported by steady and adequate budget. Describe how the laboratory system can work with the academic institutions to educate and train the workforce in a way that assures a constant and adequate supply of competent laboratory personnel.

4. *Information Systems* – Laboratory information systems are often linked to the information systems of their parent organization, however in order for a national laboratory system to work effectivity and efficiently, the LIMS of each laboratory should be able to merge or plug-in well and efficiently within the system. Map out the current system wide LIS and describe how it functions in terms of interoperability and rapid, accurate data exchange.
    a. If those conditions are not in place, then outline the steps that are needed to implement them.

5. *Quality Management Systems* – There are different international standards that apply to the quality of laboratory services. To assure that these standards are in place and adhered to there must be funding and a commitment to do so. Develop a system-wide QMS process that will assure that international quality standards are being met across all levels of the national laboratory system.
    a. Describe if/how programmes like EQA are being carried out and whether they are meeting the needs of all laboratories within the system.

6. *Biosafety and Biosecurity* – Biosafety and biosecurity practices and standards may differ within different sectors of the national laboratory system, or may be

harmonised through legislation in place applying to many sectors. Develop (or review if existing) a biosafety and biosecurity plan that can be applied at the system level and how the system addresses varied requirements for biosafety and biosecurity that exist across various sectors.

Other examples of potential capstone projects include the following:

- Design a sample repository system/sample bank/biobank that can serve the needs of all sectors of the National laboratory System;
- Establish the process for training laboratory assessors whose responsibility is to periodically perform remote and on-site evaluations of laboratories within the system;
- Determine the effectiveness of the laboratory-based surveillance system and outline ways to improve laboratory-based surveillance as required;
- Design a national process for managing biomedical waste. Include how the process should be monitored;
- Design a tiered system for providing laboratory services, indicating what level of expertise and resources is required at each tier.

It should be noted that some of the project ideas will require multisectoral collaboration and all efforts should be made to design and implement these projects respecting all sectors.

Optional project scoring

Below is a sample scoring rubric for projects. It may be adapted for use with both small projects and capstone projects.

Sample project scoring rubric

Overall score according to below scoring scale:————————/100

A. Thesis /Project description			
Statement		***Score***	***Please explain your score, provide remarks and/or points for improvement:***
A1	Correct document technical requirements	/5	
A2	Clearly stated background and problem/thesis	/10	
A3	Clear objectives	/10	
A4	Logical workflow	/5	
A5	Clearly constructed abstract	/10	
A6	Material and methods appropriate for subject	/5	
A7	Conclusion clearly stated, supported and logical	/10	
A8	Clearly stated recommendations	/10	
A9	Adequate bibliography	/5	
A	**Subtotal**	**/70**	

B. Oral presentation			
B1	Presentation clear and logical	/5	
B2	Oral presentation clear and understandable	/5	
B3	Respects time limit	/5	
B4	Contains the main element of the thesis	/5	
B5	Responds fully to questions	/10	
B	**Subtotal**	**/30**	